

### REMARKS/ARGUMENTS

The following remarks are believed responsive to the points raised by the Office Action dated August 3, 2005. In view of the following remarks, reconsideration is respectfully requested.

#### *Information Disclosure Statement*

An Information Disclosure Statement, including a PTO-1449 Form, and copies of the non-U.S. patent documents listed on the Form, is submitted herewith, along with the appropriate fee. The documents listed on the Form have been made of record in copending Application No. 10/460,539. It is respectfully requested that the Examiner place his initials in the appropriate area of the Form, thereby indicating his consideration of the documents, and return the initialed Form to Applicant.

#### *The Pending Claims*

Claims 1-6 remain pending.

#### *The Office Action*

Claims 1-3 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,459,263 to Prasad (hereinafter referred to as "Prasad 263") in view of U.S. Patent Application Publication No. US 2002/0004018 to Prasad et al. (hereinafter referred to as "Prasad '018") and German Published Patent Application DE 412606 (hereinafter referred to as "DE '606").

Claims 4-6 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Prasad 263 in view of Prasad '018 and DE '606, and further in view of U.S. Patent No. 5,799,386 to Ingersoll et al. (hereinafter referred to as "Ingersoll et al.").

Each of these rejections is respectfully traversed.

The Office Action acknowledges that Prasad '263 does not teach the use of either Si or Ta, or manufacturing impurities of <0.1 wt%. However, the Office Action states that Prasad '018 teaches adding Si and Ta to Co alloys, and both Prasad '263 and Prasad et al. disclose compositional ranges that overlap those claimed by Applicant. The Office Action concludes it would have been obvious to one of ordinary skill in the art to add Ta and Si as taught by Prasad et al. to the invention of Prasad '263 to improve corrosion resistance, lower

melting temperature, and to strengthen the alloy. The Office Action also concludes that since DE '606 teaches adding N in an amount above 0.15%, it would have been obvious to one of ordinary skill in the art to add N in an amount of above 0.15% in order to improve the repeated heating without deterioration of the alloy, and it would be obvious to minimize the amount of impurities to less than 0.1% to improve the performance of the alloy.

As an initial point, Applicant respectfully notes that the alloy disclosed by Prasad '263 is very different from the claimed alloy.

Prasad '263 requires the presence of both ruthenium (a noble metal) and aluminum (*see, e.g.*, col. 2, lines 36-38). In fact, Prasad '263 teaches alloys having ruthenium in the range of from 5 to 15 % (*see, e.g.*, col. 2, line 61; col. 3, line 19, and col. 5, Table II). In contrast, the claimed alloy is a "nonprecious" metal dental casting alloy.

Thus, Prasad '263, in teaching 5-15% ruthenium, a noble metal, is following a different concept, and relates to a different alloy, than Applicant, who is claiming a nonprecious alloy that, if it even contained ruthenium, could only include it as an impurity with a proportion of less than 0.1 wt%. For this reason alone, it is respectfully submitted that a *prima facie* case of obviousness has not been established.

While the Office Action refers to alloy 6 in Prasad '263, and it is noted that alloy 6 does not include aluminum, it does have a ruthenium content of 10%. Alloy 6 is additionally very different from the instantly claimed alloy in that alloy 6:

- (a) does not include Si in the range of 0.8 to 1.5 wt%;
- (b) does not include N in the range of 0.1 to .35 wt%;
- (c) contains gallium in an amount of 0.5% by weight;
- (d) contains boron in an amount of 0.17% by weight;
- (e) contains iron in an amount of 1% by weight; and
- (f) contains copper in an amount of 1% by weight.

Since Applicant's claimed alloy includes (a) and (b), and Prasad '263 does not (as acknowledged in the Office Action), and since Applicant's claimed alloy includes "manufacturing impurities of <0.1 wt% in each case," and each of (c), (d), (e) and (f) of Prasad '263 is far greater than 0.1 wt%, this reinforces the great differences between the alloy of Prasad '263 and that of Applicant.

While Prasad '263 does refer to cobalt, chromium, and molybdenum, the only disclosure of tungsten combined with molybdenum anywhere in Prasad '263 is with respect

to alloy 6, which does not contain aluminum. However, Prasad '263 makes clear that aluminum is a required component of the inventive alloy. In this context, it is important to note that alloy 6 is provided as a comparative example, i.e., to show that it is "undesirable" (col. 5, line 65) compared to Prasad '263's inventive alloy. Thus, one of ordinary skill in the art recognizes that Prasad '263, in repeatedly stressing the importance of ruthenium and aluminum, relates to a very different alloy than claimed by Applicant.

While the Office Action refers to Prasad '018, this reference also teaches an alloy that is very different than that claimed by Applicant. For example, Prasad '018, like Prasad '263, teaches a noble metal alloy. Prasad '018 requires gold (*see, e.g.*, col. 2, paragraph [0007]), and Table 1 refers to gold in the alloy in ranges of 15-85 wt%, 20-70 wt%, and 30-50 wt%.

The gold content in the alloy taught by Prasad '018 makes it rather costly, and one of ordinary skill in the art would not be led to combine the noble metal alloy taught by Prasad '263 with the noble metal alloy taught by Prasad '018 to provide Applicant's nonprecious metal casting alloy. Moreover, for the reasons set forth above, the compositional ranges of Prasad '263 and Prasad '018 do not overlap those claimed by Applicant, and thus, a *prima facie* case of obviousness has not been established.

DE '606 also relates to a different alloy than that claimed by Applicant, as explained in the instant specification in the paragraph bridging pages 3 and 4. For example, DE '606 discloses an alloy that must contain rare-earth elements to an extent from 0.15 to 0.35 wt%. Moreover, the alloy taught by DE '606 requires more molybdenum than tungsten, which is the opposite of Applicant's claimed ratio.

In summary, the nonprecious metal dental casting alloy of the present invention is patentably distinct from dental alloy of Prasad '263 for the reasons set forth above. The fact that Prasad '018 (that, like Prasad '263 teaches metal alloys) may teach using Si and Ta is of no import. Prasad '018 simply does not cure the deficiencies of Prasad '263, and therefore, the combination also fails to render the present invention obvious. Similarly, the fact that DE '606 may teach using N is of no import, as DE '606 also fails to remedy the deficiencies of Prasad '263 and Prasad '018, and therefore, the combination also fails to render the present invention obvious.

Since independent claim 1 is allowable for the reasons set forth above, dependent claims 2 and 3 are allowable as they depend from the novel and non-obvious independent claim 1.

Dependent claim 2 is also allowable, not only because it depends from novel and non-obvious independent claim 1, but it also defines limitations not taught by the cited references. Prasad '263, Prasad '018, and DE '606, whether taken alone or in combination, fail to teach or suggest the defined alloy, wherein the alloy is substantially free from rare-earth elements.

It is noted that the Office Action, in rejecting dependent claims 4-6, cites Ingersoll et al. for teaching casting methods.

However, the fact that Ingersoll et al. may teach casting methods is of no import, as Ingersoll et al. fails to remedy the deficiencies of Prasad '263, Prasad '018, and DE '606, and therefore, the combination also fails to render the present invention obvious.

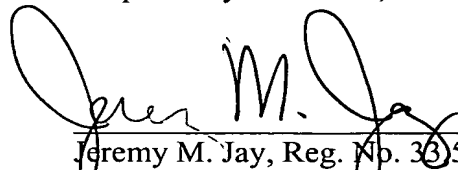
Thus, since independent claim 1 is allowable for the reasons set forth above, dependent claims 4-6 are allowable as they depend from the novel and non-obvious independent claim 1.

For the reasons set forth above, reconsideration of the rejections is respectfully requested.

*Conclusion*

If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,

  
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